

G-MB - 57/63
5 February 1963

MEMORANDUM FOR: Chief, CIA/PID (NPIC)

FROM: Chief, Geo-Military Branch, PID

SUBJECT: Stereo Versus Non-Stereo Photography

1. The purpose of this memo is an attempt to relay the opinions of the photo interpreter on the advantages of stereo versus non-stereo photography.

2. The primary concern of the photo interpreter is the identification of three dimensional objects on the earth's surface. Stereo photography is the only means that presents these photographed images in three dimensional form. When non-stereo photography is employed, the lack of the third dimensional image is replaced by certain accepted techniques familiar to the PI, the principal of which is the utilization of the objects shadow to determine height, relative height, or shape. Herein, is introduced the possibility of error, since what is apparent on stereo-photography must be interpreted on the non-stereo photographs. Cloud shadow and haze both of which makes shadows less apparent are factors which would affect the interpretation as would shadows formed from low sun angles. Of course photography taken when the sun is near it's zenith would cast little or no shadow at all. Another factor in utilizing the shadow technique is that the ground must be smooth and nearly level, any variation of either of these conditions would result in a distorted shadow with the possibility of an error in interpretation. There are also instances where it is not readily apparent whether a dark area on a photograph is the result of shadow or activity which may have created a tonal change on the ground or object. An example of this might be where a small excavation has been dug and the photography was obtained during a period of low sun angle. On non-stereo it may be exceedingly difficult to determine whether or not an excavation exists. Stereo coverage will not necessarily provide an answer in all cases but will certainly enhance the probability of making a more reliable determination.

3. There is one factor which perhaps overrides all others in considering the relative merits of stereo versus non-stereo coverage. That factor being that the final product can be no better than the input. In this instance, the PI reports and the materials available to work with. The amount of information recorded on any one photograph is finite and is the limiting factor or what can be obtained by PI. This therefore places the entire

burden of obtaining information on the photo interpreter who, being human, is not perfect at the best. Since the PI is the variable factor involved it would seem natural that any input which would assist him in performing his work would benefit the final product.

4. Under our present operating procedures immediate mission readouts and mission coverage indexes are prepared using non-stereo techniques. On more than one occasion first impressions based on a non-stereo study were later reversed as a result of reexamination utilizing stereo methods.

5. The arguments in favor of stereo coverage are not based on tests but on the daily experiences of the photo interpreters.

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